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Data Sheet: 95.5 Lead-2.5 Silver-2Tin

Physical Properties of Bulk Solder

Solder Alloy Composition	95.5Pb-2.5Ag-2Sn (weight per cent)
Melting range	299-304°C
Density	11.19 Mg/m ³
Thermal conductivity	0.28 W/cm K ⁻¹
Electrical conductivity	5.7% IACS
Coefficient of Thermal Expansion	25.0 x 10 ⁻⁶ K ⁻¹
Tensile strength (est.)	35 GNm ⁻²
Bonding strength	18 GNm ⁻²

Typical impurity levels for electronic grade are less than:

Au: 0.05	Cu: 0.08	Ni: 0.01	Al: 0.0005
Bi: 0.001	Fe: 0.02	Zn: 0.0003	As: 0.0003
Cd: 0.002	In: 0.10		

Application: The 95.5Pb2.5Ag2Sn-alloy is widely used for the manufacture of semiconductor components. It combines a higher melting range, with good mechanical strength and thermal fatigue properties. The 2% tin and the 2.5 Ag additions assure a reasonable wetting with higher strength to copper leads and Au-flash coated Si-chips in die-attach applications. The higher melting temperature range is wide enough to permit two-or even three-step soldering. The higher melting range makes the alloy also very suitable for fluxless soldering in an inert or reducing atmosphere.

Thanks to the high-Pb the alloy is a high-temperature tin-, silver-bearing solder with good thermal fatigue properties. It is used extensively in the assembly of diodes and rectifiers with preforms in belt furnaces and with wire in die-attach units with a forming gas mixture (N₂, H₂) or cracked anhydrous ammonia (75%H₂, 25%N₂).

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